Abstracts

Computer-Graphic Analysis of Dielectric Waveguides (Correspondence)

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The solutions to microwave problems are often enhanced by a visual representation of the fields, especially when the mathematical expressions are so complex as to resist physical interpretation by themselves. The particular graphical aid which is the subject of this correspondence is the field mapping, defined as a family of curves drawn parallel to the vector field being represented. Although such diagrams have been considered to be of great value since the early study of electrodynamics, the analytical and numerical complexities of modern engineering problems have inhibited their use on any wide scale. However, the current availability of digital computers, with compatible automatic plotting equipment, has made the numerical determination and display of field mappings a very practical adjunct to established analytical methods. The purpose of this correspondence is to illustrate the utility of field mapping by displaying the transverse electric field for the HE/sub 11/ mode on a dielectric rod. It will be shown that the curvature of the field lines is in the opposite direction to that commonly assumed.

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